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Titolo	Green Photocatalytic Semiconductors : Recent Advances and Applications / / edited by Seema Garg, Amrish Chandra
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Disciplina	541.395
Soggetti	Catalysis Materials Nanochemistry Semiconductors Environmental protection Civil engineering Hydrogen as fuel Catalytic Materials Soil and Water Protection Hydrogen Energy
Lingua di pubblicazione	Inglese
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Nota di contenuto	Photocatalysis: Introduction, Mechanism, and Effective Parameters -- Optimization of process, Mechanism and Kinetics study for Photocatalytic oxidation -- Design and synthesis of nanostructured photocatalysts for water remediation -- Graphene Based Nanocomposites for Photocatalytic Applications: Emphasis on Environmental Remediation -- Polymer Nanocomposite Films Based on Two-Dimensional Materials for Photocatalytic Applications -- Photocatalyst composites from Bi-based and carbon materials for visible light photodegradation -- New photocatalytic materials based on complexes of nanodiamonds with diphthalocyanines of rare earth elements -- Photoreactive composite coatings with tunable surface wetting properties and its application possibilities -- Rare earth doped luminescent materials as photocatalysts for enhanced photocatalytic

reactions -- Enhancement of singlet oxygen generation of Radachlorin® conjugated with polyvinylpyrrolidone and nanodiamonds in aqueous media -- The role of metal nanoparticles on nanocomposites for UV and visible light active photocatalysis -- The role of oxygen vacancy and other defects for activity enhancement -- Efficient Visible-light-driven Perovskites Photocatalysis: Design, Modification and Application -- Advanced laser methods for synthesizing photocatalysts -- Immobilization of photocatalytic material on the suitable substrate -- Photo-Catalytical and Other Similar Green Technologies for Reducing Environmental Impacts of Leather Industries -- Science and Technology Roadmap for Photo-catalytic Membrane Separation: A Potential Route for Environmental Remediation and Fouling Mitigation -- Photocatalysis degradation of dye using P-type nanoparticles -- Nano Enhanced Photocatalytic Approach for Separation of Oily Emulsion from Aqueous Effluents: Recent Trends, Future Perspective and Challenges -- Photocatalytic CO₂ reduction -- Emerging Photocatalysts for Hydrogen production Electro-catalytic and Photo-catalytic water splitting -- Bandgap Engineering of Heterostructures for Visible Light Driven Water Splitting -- Novel Solid Photocatalysts for Hydrogen Generation from Aqueous Phases -- Visible Range Activated Metal Oxide Photocatalysts in New and Emerging Energy Applications -- Hybridized nanomaterials for enhancing photocatalytic activity in solar fuel production.

Sommario/riassunto

This book comprises a detailed overview on the role of photocatalysts for environmental remediation, hydrogen production and carbon dioxide reduction. Effective ways to enhance the photocatalytic activity of the material via doping, hybrid material, laser light and nanocomposites have been discussed in this book. The book also further elaborates the role of metal nanoparticles, rare earth doping, sensitizers, surface oxygen vacancy, interface engineering and band gap engineering for enhancing the photocatalytic activity. An approach to recover the photocatalytic material via immobilization is also presented. This book brings to light much of the recent research in the development of such semiconductor photocatalytic systems. The book will thus be of relevance to researchers in the field of: material science, environmental science & technology, photocatalytic applications, newer methods of energy generation & conversion and industrial applications.
